

**Title** Effect of packing materials and storage time on volatile compounds in tea processed from flowers of black elder (*Sambucus nigra* L.)

**Author** Karl Kaack and Lars P. Christensen

**Citation** European Food Research and Technology, 227, Number 4, 1259-1273, 2008

**Keywords** Drying; Packaging materials; Tea storability; Sensory characteristics; Volatile compounds

### Abstract

The effect of cultivar, packaging materials and storage time at 20 °C on volatile compounds in tea processed by gentle air-drying of flowers from the black elder cultivars Sampo, Sambu and Samyl was determined. Elderflower tea samples packed in bags of paper at normal pressure and in bags of plastic and aluminium at 99% vacuum were stored for up to 21 months and investigated for volatile compounds. Volatile compounds emitted from elderflower tea samples were collected by dynamic headspace technique (purge and trap) and analysed by GC–FID and GC–MS. A total of 56 volatile compounds were identified and quantified, including 10 aldehydes, 7 ketones, 21 alcohols, 1 phenol, 3 esters, 4 heterocycles, and 8 hydrocarbons being derivatives of fatty acids, amino acids, shikimic acid and/or of terpenoid origin. Packaging material and storage time had a significant effect on the content of volatile compounds and 15 volatile compounds disappeared partially or completely during processing and/or storage. Tea processed from flowers of the cultivars Sampo and Sambu and packed in plastic and aluminium bags had a satisfactory flavour and content of volatile compounds at least up to 3 months or more after processing, whereas all tea samples processed from Samyl had an unpleasant grassy off-flavour. The content of important volatile compounds with grassy notes such as hexanal, heptanal, and (*Z*)-3-hexen-1-ol were at the same level in all cultivars. However, the content of important elderflower volatiles with flowery, fruity and/or sweet notes such as linalool, hotrienol, and *cis*- and *trans*-rose oxide were significantly lower in Samyl compared to Sampo and Sambu, which to some extent may explain the differences in tea flavour between the stored elderflower tea samples.

<http://www.springerlink.com/content/u02n443xgl820716/fulltext.pdf>